

REMARKS

Claims 1-37 have been canceled and claims 38-76 have been added. Applicants expressly reserve their right to prosecute the subject matter of any canceled claim in one or more continuation, continuation-in-part or divisional applications. No new matter has been added.

1. New Claims 38-76

The new claims, 38-76, are fully supported by the specification and do not constitute new matter. Support for the new claims can be found at the following page and line numbers. Claim 38 is supported by the specification at p. 17, lines 20-26 (disclosing that the anti-resorptive agent's particle-size is about the same size as the bone-cement's particles) and p. 14, lines 4-10 (disclosing specific size distributions). Claims 39-43 are supported by the specification at p. 29, line 22 to p. 30 line 8 (disclosing the bisphosphonates: pamidronate, etidronate, alendronate, zolendronate and their pharmaceutically acceptable salts and esters). Claims 44-46 are supported by the specification at page 23, line 30 to p. 25, line 25 (disclosing gallium fluoride, a cholesterol-lowering agent, and an estrogen-bisphosphonate conjugate). Claim 47 is supported by the specification at p. 11, line 22 to p. 12, line 8 (disclosing an acrylic bone-cement and a hydroxyapatite bone-cement). Claims 48-49 are supported by the specification at p. 11, lines 23-24 and p. 29, line 5 to p.31, line 5 (disclosing polymethylmethacrylate, pamidronate, zolendronate, zoledronic acid, or a pharmaceutically acceptable salt or ester thereof).

Claims 50-51 are supported by the specification at p. 14, lines 4-10 (disclosing specific size distributions). Claims 52-53 are supported by the specification at p. 16, line 12 to p. 17, line 19 (disclosing that the anti-resorptive agent can be impregnated in or on the surface of the bone-cement). Claims 54-58 are supported by the specification at p. 18, lines 3-27 and p. 37, lines 11-13 (disclosing compositions that do not compromise the cement's chemical or mechanical properties and specific amounts of antiresorptive agent). Claims 59-63 are supported by the specification at p. 29, line 22 to p. 30 line 8 (disclosing the bisphosphonates: pamidronate, etidronate, alendronate, zolendronate and their pharmaceutically acceptable salts and esters). Claims 64-66 are supported by the specification at page 23, line 30 to p. 25, line 25 (disclosing gallium fluoride, a cholesterol-lowering agent, and an estrogen-bisphosphonate conjugate). Claim 67 is supported by the

specification at p. 11, line 22 to p. 12, line 8 (disclosing an acrylic bone-cement and a hydroxyapatite bone-cement).

Claims 68-69 are supported by the specification at p. 11, lines 23-24 and p. 29, line 5 to p.31, line 5 (disclosing polymethylmethacrylate, pamidronate, zolendronate, zoledronic acid, or a pharmaceutically acceptable salt or ester thereof). Claim 70 is supported by the specification at p. 18, lines 3-27, p. 26, lines 1-2, and p. 37, lines 11-13, and p. 38, lines 3-5 (disclosing compositions that are not toxic and that do not compromise the cement's chemical or mechanical properties and disclosing specific amounts of antiresorptive agent). Claim 71 is supported by original claims 1-2 and claim 72 is supported by the specification at page 6, line 35; page 38, lines 16-17 (disclosing the use of Howmedica's Surgical Simplex Cement); page 12, lines 4-7; page 13, lines 20-36, original claims 1 & 2; and page 30, lines 17-34. Claims 73-75 are supported by original claim 1 and page 30, lines 17-34 of the specification (disclosing specific bisphosphonates) and claim 76 is supported by original claim 1, page 29, lines 3-17 (structure II) and page 30, line 18 of the specification (disclosing zolendronate, zoledronic acid, or a pharmaceutically acceptable salt or ester thereof).

2. The New Claims are Not Anticipated Under 35 U.S.C. § 102(b) by the O'Keefe patent

Claims 1, 6-12, 23-24, 26 and 27 have been rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by United States Patent No. 6,010,711 (the "O'Keefe patent"). This rejection is moot in view of the cancellation of claims 1-37. In addition, the new claims are not anticipated by the O'Keefe patent for the following reasons.

The office action contends that the O'Keefe patent teaches bone resorption-inhibiting compositions that comprise cytokine-suppressing agents and bisphosphonates in methylmethacrylate bone cement. In contrast, new claims 38-53 recite that the bone cement and anti-resorptive agent be in the form of particles wherein the anti-resorptive agent's particle-size distribution is about the same size as the bone-cement's particle-size distribution. The O'Keefe patent does not disclose that the anti-resorptive agent's particle-size distribution is about the same as the bone-cement's particle-size distribution. Therefore, the O'Keefe patent does not disclose each and every element of claims 38-53 and, accordingly, does not anticipate the claims under 35 U.S.C. § 102(b).

New claims 54-70 require that the anti-resorptive agent be present in an amount that does not compromise the cement's chemical or mechanical properties. In contrast, the O'Keefe patent does not disclose that the anti-resorptive agent be present in amounts wherein

the anti-resorptive agent does not compromise the cement's chemical or mechanical properties. Therefore, the O'Keefe patent does not disclose each and every element of claims 54-70 and, accordingly, does not anticipate claims 54-70 under 35 U.S.C. § 102(b).

New claims 71-76 recite specific combinations of bone cements and anti-resorptive agents. In contrast, the O'Keefe patent does not disclose the specific combinations of bone cements and anti-resorptive agents claimed. Therefore, the O'Keefe patent does not disclose each and every element of claims 71-76 and, accordingly, does not anticipate these claims under 35 U.S.C. § 102(b).

Thus, in view of the above, the O'Keefe patent does not anticipate new claims 38-76. In addition, the O'Keefe patent issued on January 4, 2000. The Applicants claim the benefit of U.S. provisional application no. 60/119,260, filed February 9, 1999. Accordingly, the O'Keefe patent is not prior art under 35 U.S.C. § 102(b). Thus, the rejection under 35 U.S.C. § 102(b) cannot stand and must be withdrawn.

3. The New Claims are Not Obvious Under 35 U.S.C. § 103(a) over the Lehtinen Patent

Claims 17-20 have been rejected as allegedly obvious under 35 U.S.C. § 103(a) over United States Patent No. 5,733,564 (the "Lehtinen patent"). This rejection is moot in view of the cancellation of claims 1-37. In addition, the new claims are not obvious in view of the Lehtinen patent for the reasons detailed below.

The office action contends that the Lehtinen patent teaches bisphosphonates added to solution used for the preservation of endo-osteal materials and further contends that it would have been obvious to substitute pamidronate, etidronate or alendronate for clodronate. New claims 38-53 recite that the bone-cement and anti-resorptive agent are in the form of particles wherein the anti-resorptive agent's particle-size distribution is about the same as the bone-cement's particle-size distribution. The Applicant's have surprisingly discovered that if the particle-size distribution of the antiresorptive agent is about the same as the bone-cement, a uniform mixture will result which prevents clumping thereby promoting the even distribution of the antiresorptive agent in the composition. If the antiresorptive agent is not evenly distributed, the agent may seep out of the cured cement at different rates and/or in different peripheral areas (a problem that has been encountered in using non-uniform mixtures of bone-cement and anti-resorptive particles).

In contrast, the Lehtinen patent does not disclose, teach, or suggest a bone-cement, much less a bone cement whose particle-size distribution is about the same as an anti-

resorptive agent's particle-size distribution. In stark contrast, the Lehtinen patent relates to the use of a bisphosphonate solution allegedly useful for preserving the surface properties of prosthetic devices (such as artificial joints and hips) for implantation. The prosthetic devices of the Lehtinen patent can hold only a relatively small amount of bisphosphonate on their surface. Moreover, they provide little, if any controlled-release of bisphosphonate. Accordingly, the Lehtinen patent does not suggest, much less teach, the compositions of new claims 38-53.

New claims 54-70 require that the anti-resorptive agent be present in an amount that does not compromise the cement's chemical or mechanical properties. The Applicant's have surprisingly discovered that anti-resorptive agents in certain amounts will not compromise the chemical or mechanical properties of the cured cement composition. The Lehtinen patent does not teach or suggest a bone cement, much less a bone that does not compromise the cement's chemical or mechanical properties. Accordingly, the Lehtinen patent does not suggest, much less teach, the compositions of new claims 54-70.

New claims 71-76 require specific combinations of bone cements and anti-resorptive agents. The Lehtinen patent does not teach or suggest a bone cement, much less the specific combinations of bone cements and anti-resorptive agents. Thus, the Lehtinen patent does not teach or suggest the compositions of new claims 54-70.

Applicants respectfully direct the Examiner's attention to MPEP § 2143.03 where it states that in order to reject a claim for obviousness, all the claim limitations must be taught or suggested by the reference or combination of references. Since Lehtinen does not teach or suggest all of the claim limitations in each of new claims 38-76, Lehtinen cannot and does not render the new claims obvious under 35 U.S.C. § 103. Accordingly, this rejection should be withdrawn.

4. The Rejection Under 35 U.S.C. § 103(a) As Being Obvious Over O'Keefe In View of Mao Should Be Withdrawn

Claims 1-16 and 21-37 were rejected under 35 U.S.C. § 103(a) as being obvious over O'Keefe in view of Mao (U.S. Patent No. 6,238,687). This rejection is moot in view of the cancellation of claims 1-37. In addition, the new claims are not obvious over O'Keefe in view of Mao for the reasons detailed below.

Mao does not cure the deficiencies of O'Keefe. Mao teaches away from the Applicant's invention. Mao discloses the use of specific *biodegradable* polymers that can be used as a bone-cement and formulated with certain bioactive materials. In contrast, the bone-

cement of the Applicant's invention is intended to be used to bond prosthetic implants to the bone of a patient for substantially the life of the patient. Since the polymers disclosed in Mao are biodegradable, the combination of Mao with O'Keefe in an attempt to derive the Applicant's invention would change the principal of operation of the Applicant's invention and render it unsatisfactory and inoperable for its intended purpose. Furthermore, Mao issued on May 29, 2001 and the O'Keefe patent issued on January 4, 2000. The Applicants claim the benefit of U.S. Provisional Patent Application No. 60/119,260, filed February 9, 1999. Thus, the priority date of the Applicant's invention predates the issuance (publication) of the Mao and O'Keefe patents. As a consequence of all of the above, the new claims are not obvious over O'Keefe in view of Mao under 35 U.S.C. § 103(a).

CONCLUSION

Entry of the foregoing remarks and amendments is respectfully requested. No fee is believed to be due with this Amendment, other than the fee for the Petition For Extension of Time. However, if any other fee is required, please charge the fee to Pennie & Edmonds LLP Deposit Account No. 16-1150. If any issues remain, the Examiner is requested to telephone the undersigned at (212) 790-9090.

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Respectfully submitted,

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Enclosures